Quite conceivably, domestic automobile manufacturers could not maintain quality standards at a time when market forces and government regulations were forcing them to make unprecedented changes in their product lines. While foreign producers also had to adapt, the burdens on them were less. In the first place, they were already producing smaller cars so they did not have to "downsize" their fleets. In addition, larger cars have larger engines that tend to emit more pollutants. Since the air quality standards did not distinguish between vehicle size, U.S. manufacturers may have had to make greater changes in their vehicles. Contributing to the domestic industry's problems were the significant cost advantages of the Japanese manufacturers. Lower labor costs, while important, were not the only source. Japanese producers had developed a number of innovations in manufacturing, including "just-in-time" inventory control and quality circles, that not only lowered costs but reduced defects in manufacturing. 13/

Along with the decline in demand for automobiles came a sharp deterioration in the industry's employment and profitability. In 1980, the number of employees in the motor vehicle and equipment industry declined by more than 20 percent, while after-tax profits of $4.4 billion in 1979 had turned into a $3.2 billion loss. 14/ None of the domestic manufacturers recorded profits including General Motors, which had last reported a loss in 1921. Chrysler, the smallest of the Big Three, was especially vulnerable to the decline in demand and was saved from bankruptcy by the federal government's decision in January 1981 to guarantee loans to the company of up to $1.5 billion.

PROTECTING THE INDUSTRY FROM INTERNATIONAL COMPETITION

The deteriorating competitive position of domestic industry led to pleas for protection. In 1980, Ford and the United Automobile Workers filed a petition with the International Trade Commission under Section 201 of the Trade Act of 1974 for import relief. By a three to two vote, however, the ITC ruled that the recession and the shift in demand toward small cars were more important factors than increased imports in causing the industry's dif-

13. For a discussion of these innovations, see National Academy of Engineering, *The Competitive Status of the U.S. Auto Industry*, pp. 101-107.

14. Profits are derived from the Department of Commerce, *Quarterly Financial Report*. The motor vehicle industry also includes trucks, buses, and parts manufacturers.

ficulties. 15/ Nevertheless, in response to the large losses of the domestic automobile manufacturers coupled with the continuing increase in the sale of Japanese automobiles, the Reagan Administration negotiated VRAs with Japan in the spring of 1981. Among the reasons the Administration cited for seeking the restraints were the burdens of the government's regulations. 16/

The VRAs established a ceiling of 1.68 million vehicles for the year ending March 31, 1982. This limit was 8 percent below what Japan had exported to the United States in 1980. Japan subsequently agreed to maintain the 1.68 million ceiling for a second year, and an increased ceiling of 1.85 million autombiles in 1984 and 1985. When the extended agreement expired in March 1985, the United States did not request that it be renewed. Nevertheless, Japan unilaterally restricted automobile imports to 2.31 million units for two additional years.

THE EFFECT OF THE VOLUNTARY RESTRAINT AGREEMENTS

The VRAs were designed to reduce imports of Japanese cars and thus increase their prices, thereby raising prices and output for domestic manufacturers. At first, the economy and the demand for new cars were relatively weak, which limited the quota's effect. As economic growth resumed in 1983, the restraints became more binding and had an increasingly positive impact on the domestic industry.

The 1981-1982 Period

In 1981, domestic car sales fell by 6 percent, which was twice as rapidly as Japanese imports declined. The average selling price of a new domestic car, adjusted for inflation, increased by 6 percent, and the price of domestic

15. International Trade Commission, *Certain Motor Vehicles and Certain Chassis and Bodies Therefor, Report to the President on Investigation TA-201-44*, Publication 1110 (Washington, D.C.: ITC, November 1980).

16. See "Voluntary Curb on Japanese Car Imports Said to be 'Consensus' of Reagan, Advisers," *Wall Street Journal*, March 20, 1985, p.2.

small cars rose more rapidly. 17/ Despite a 2.7 percent appreciation in the yen, the real price of Japanese cars declined by one percent (see Table 8). Thus, changes in the prices of Japanese imports do not seem to have been much of a factor in the increased prices of domestic cars. In addition, dealers' inventories of new Japanese cars, expressed in days' supply at current selling rates, were higher in July 1981 than they had been the year earlier, before the VRAs took effect. Similarly, inventories in January 1982 were higher than they had been in January 1981. 18/ These increases provide further evidence that, since demand was weak, the restraints did not have much of an effect on the supply of Japanese cars during the first year of the quotas.

A large part of the increase in domestic prices may have resulted from the more stringent auto emission standards that took effect in the 1981 model year. The Bureau of Labor Statistics estimated the effects of these standards on retail prices amounted to 90 percent of the real increase in the average expenditure per car. Japanese manufacturers, like other foreign producers, however, also had to comply with the tighter emission standards. Despite the decline in sales and the costs of complying with tighter emission standards, profits in the motor vehicle industry increased by nearly $3 billion, although the industry recorded a narrow loss. Much of the cost of the retooling to meet the new standards was incurred in 1980 and may have contributed to the large losses in that year.

The experience in 1982, the first full year of the quotas, was similar to 1981. With the economy in the midst of a recession, domestic sales were down by nearly 7.5 percent, more than double the rate that sales of Japanese imports fell. In real terms, the average transaction price of domestic cars increased by 4.6 percent. The price of Japanese imports rose by 2.7 percent despite a 13 percent depreciation in the value of the yen.

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17. See Department of Commerce, "Analysis of the Japanese Export Restraint," processed, undated, p. 12. Car prices are measured by average expenditure per new car and are not adjusted for changes in model mix or optional equipment level. The measure was developed by the Bureau of Economic Analysis, Department of Commerce. While the new car component of the Consumer Price Index controls for such changes, it does not distinguish between domestic and imported cars. Moreover, it contains adjustments for changes in vehicle equipment including those that are mandated by government regulations.

18. International Trade Commission, *The Internationalization of the Automobile Industry and Its Effects on the U.S. Automobile Industry,"* Publication 1712 (Washington, D.C.: ITC, June 1985), p. 51.

TABLE 8. AUTOMOBILE SALES AND PRICES

Year	Unit Sales (In millions)			Average Transaction Price (In 1980 dollars)			
				Domestic		Imports	
	Domestic	Japan	Europe	Actual	Quality Adjusted[a]	Japan	Europe
1967	7.568	0.069	0.650	8,169	8,033	5,607	b
1968	8.625	0.110	0.829	8,363	8,144	5,573	b
1969	8.464	0.189	0.892	8,310	8,110	5,610	b
1970	7.119	0.313	0.968	7,869	7,592	5,619	b
1971	8.681	0.579	0.982	7,974	7,734	5,634	b
1972	9.327	0.629	0.985	7,946	7,686	5,897	b
1973	9.676	0.743	1.005	7,751	7,289	6,199	b
1974	7.454	0.592	0.807	7,558	6,965	6,721	b
1975	7.053	0.808	0.763	7,782	7,139	6,700	b
1976	8.611	0.942	0.557	7,967	7,367	7,110	b
1977	9.109	1.388	0.686	8,138	7,522	6,876	b
1978	9.312	1.357	0.645	8,186	7,579	7,499	b
1979	8.341	1.770	0.562	7,840	7,269	7,612	b
1980	6.581	1.906	0.492	7,630	6,911	6,708	10,534
1981	6.209	1.859	0.468	8,090	6,990	6,651	13,505
1982	5.759	1.802	0.421	8,442	7,350	6,833	15,708
1983	6.795	1.916	0.471	8,688	7,576	7,163	16,686
1984	7.952	1.906	0.533	8,864	7,764	7,391	17,121
1985	8.204	2.218	0.616	8,900	7,775	7,756	16,350

SOURCE: Congressional Budget Office; Bureau of Labor Statistics, Department of Commerce.

NOTE: Prices adjusted by the consumer price index.

a. Quality adjustments are based on Bureau of Labor Statistics data on cost of complying with safety and emission standards as well as other quality improvements. It is assumed that the cost of these adjustments declines by 5 percent in each subsequent year; for a justification of this assumption, see Robert Crandall and others, *Regulating the Automobile* (Washington, D.C.: The Brookings Institution, 1986), pp. 34-36.

b. Before 1980, the Department of Commerce did not report prices of European and Japanese automobiles separately.

The 1983-1985 Period

Despite the voluntary restraint agreements, the Japanese manufacturers' share of domestic car sales rose from 21.2 percent in 1980 to 22.6 percent in 1982. But in 1983 automobile sales rebounded along with the economy, and the restraints clearly limited the sales growth of Japanese automobiles. Domestic sales increased by 18 percent in 1983 and 17 percent in 1984. Sales of Japanese imports increased by 6 percent in 1983 and remained essentially flat in 1984. Prices of Japanese imports, adjusted for inflation, increased by 8 percent during this period, nearly 50 percent faster than the rate at which domestic cars prices increased. Moreover, the inventories of dealers in Japanese cars fell significantly after the initial years of the restraints. 19/ The value of the yen increased by 4.6 percent in 1983 and then remained constant for the next two years.

In part, the increase in the price of Japanese cars was the result of quality upgrading--Japanese manufacturers shifted the mix of their cars toward higher-priced vehicles. In 1980, 67 percent of Japanese imports were subcompacts compared with 48 percent in 1984. 20/ In addition, Japanese manufacturers increased optional equipment installation rates for cars exported to the United States. For example, Toyota and Nissan, the two largest Japaneese automakers, more than doubled their installation rates of air conditioners and power steering between 1980 and 1984; the percentage of cars equipped with automatic transmissions increased by more than 50 percent. 21/ Quotas provide exporters with an incentive to shift

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19. Inventories of Japanese cars averaged 42 days supply between April 1981 and March 1982. They declined to 32 days and 24 days in the following two years; for the full year of 1984, they averaged 19 days. See "Analysis of Japanese Auto Export Market," Department of Commerce, p. 7. Also see International Trade Commission, *The Internationalization of the Automobile Industry*, p. 5. In addition, see *Ward's Automotive Yearbook 1985*, p. 168.

20. International Trade Commission, *The Internationalization of the Automobile Industry*, p. 59. For a further discussion of changes in the model mix of Japanese imports that resulted from the quotas, see Robert Feenstra, "Voluntary Export Restraint in U.S. Autos, 1980-81: Quality, Employment and Welfare Effects" in R. Baldwin and A. Krueger, eds., *The Structure and Evolution of Recent U.S. Trade Policy* (Chicago: University of Chicago Press, 1984), pp. 35-59.

21. See *Ward's Automotive Yearbook*, various issues. By 1984, more than 60 percent of Japanese cars sold in the United States had air conditioning, while automatic transmission and power steering installation rates exceeded 45 percent and 85 percent respectively. The increase in installation rates was substantially smaller for domestic manufacturers, in part because a much higher percentage of domestically produced cars were equipped with these options in 1980. Installation rates for air conditioners went from 73 percent to 84 percent, and power steering went from 84 percent to 90 percent.

their product mix toward higher-quality goods. Although Japan would have undoubtedly increased its exports of higher-priced cars without the restraints, the quotas probably limited sales of lower-priced vehicles.

Sales of European imports largely followed the pattern of domestic sales. They fell between 1980 and 1982 and then increased substantially between 1982 and 1985. European producers, however, increasingly stressed the export of high-performance, high-priced cars. In 1980, the average price of a European car sold in the United States was 40 percent higher than a domestic car; this differential increased to over 90 percent in 1984. Evidently, the voluntary restraint agreements did not increase prices of Japanese vehicles by enough to encourage European producers of lower-priced vehicles to increase their exports to the United States.

The industry's profits in 1983 increased by $6.4 billion and rose by 50 percent more in 1984, as the industry earned record profits. Its rate of return on stockholder's equity in both years was higher than it had been anytime since the mid-1960s and far exceeded the average for all manufacturing (see Table 9). Reduced costs were also a factor in this improved profitability. The manufacturers negotiated more favorable terms from their suppliers and began relying more on foreign producers for components. Moreover, Ford and General Motors were aided by an agreement with the United Autombile Workers in 1982 that temporarily reduced wage rates in return for a limited form of profit sharing. As part of its federal loan gurantee, Chrysler employees had accepted wage concessions in 1981. In addition, the industry has reduced its capacity by closing a number of inefficient facillities. 22/

Estimates of the Effects of the Quotas

The International Trade Commission estimates that, in current dollars, the restraints increased the average price of Japanese imports by $831 in 1983, and by $1,338 in 1984. 23/ The ITC also estimates that the restraints increased the average price of domestic cars by $426 in 1983 and by $659 in

22. See International Trade Commission, *The Internationalization of the Automobile Industry*, pp. 29-45.

23. International Trade Commission, *The Internationalization of the Automobile Industry*. For a critique of this study, see "Comments on ITC Report (A Review of Recent Developments in the U.S. Automobile Industry Including an Assessment of the Japanese Voluntary Restraint Agreements (February 1985))," prepared for Ford Motor Company by Saul H. Hymans, processed, undated.

TABLE 9. PROFITS OF THE MOTOR VEHICLE INDUSTRY

Year	Before-Tax Profits (In billions of current dollars)	After-Tax Profits (In billions of current dollars)	After-Tax Profits As a Percent of Stockholder's Equity		Long-Term Debt As a Percent of Stockholder's Equity	
			Motor Vehicles	All Manufacturing	Motor Vehicles	All Manufacturing
1974	3.016	1.955	7.10	14.39	14.83	22.63
1975	2.976	1.737	6.13	11.28	16.59	24.59
1976	8.469	5.097	16.77	13.57	12.40	24.81
1977	10.24	6.131	18.16	13.75	11.49	25.14
1978	10.11	6.212	16.31	14.47	9.73	24.97
1979	6.715	4.382	10.93	15.82	11.98	24.07
1980	-3.722	-3.168	-8.69	15.18	19.28	24.23
1981	0.317	-0.209	-0.58	13.29	24.30	25.33
1982	1.099	0.734	2.08	9.07	23.58	27.04
1983	10.77	7.168	18.61	10.25	15.16	25.87
1984	15.179	10.575	23.11	12.18	11.87	24.96
1985	12.938	9.085	17.77	10.01	15.39	29.21

SOURCE: Department of Commerce, *Quarterly Financial Reports.*

1984. Expressed in 1980 dollars, these estimates imply that the VRAs increased 1984 prices of Japanese cars by $1,061, which is more than the real price of Japanese cars rose between 1981 and 1984. The ITC further estimates that the restraints increased domestic sales by 360,000 units in 1983 and 617,000 units in 1984, which increased employment by 25,600 and 44,100 respectively in the two years.

The Congressional Research Service estimates that the restraints increased the price of Japanese cars by $700 in 1984.[24] Another study concludes that in 1983 the average price of a Japanese import was $1,000 higher because of the quotas, and the average price of a domestic car was

24. Dick Nanto, "U.S. Economic Policy in an International Context," Congressional Research Service Report No. 85-34 E, January 2, 1985.

increased by $400.[25] This same study also estimates that the quotas increased domestic sales by 400,000 units, resulting in 26,200 more jobs in the industry.

None of these analyses adequately control for the apparent shift in demand toward larger and higher-priced cars during the period of the VRAs. Consequently, these estimates may overstate the pure price effects of the VRAs; probably more seriously so in the case of Japanese imports, where the shift toward higher priced vehicles and the increase in installation rates of optional equipment has been greater. Nevertheless, these estimates provide a basis for estimating the quotas' impact on the profitability of the industry.

If one assumes that the price increase of domestic cars resulting from the quotas was one-half of the actual quality-adjusted increase from 1983 and 1984, then the quotas increased the average domestic car prices by $310 in 1983 and $430 in 1984. In that case, the quotas generated additional before-tax profits of $2.1 billion in 1983 and $3.4 billion in 1984, which represent 20 percent and 23 percent of the motor vehicles' before-tax profits in the two years. Domestic profits were also aided by the increased sales. Although the stronger demand for new cars enabled dealers to achieve higher profit margins, the bulk of the increased expenditures flowed directly to the manufacturers.

Japanese manufacturers, as well as their dealers, also profited from the higher prices. If, as the ITC concluded, the quotas increased prices by $831 in 1983 and $1,338 in 1984, then they would have earned an additional $1.6 billion and $2.6 billion from the cars sold in the United States. The ITC assumes that absent the quotas, the real price of Japanese cars would have declined. Alternatively, if one assumes that without the quotas the real price would have remained constant, then prices of Japanese cars were $550 higher in 1983 and $825 higher in 1984. In that case, profits would have increased by $1.0 billion and $1.6 billion, respectively. Dealers of Japanese cars, who in some regions of the country were able to command prices in excess of the sticker prices for certain models, undoubtedly captured a larger portion of the higher prices than did the dealers of domestic cars.

Since sales of Japanese cars were restricted by the quotas, any profits forgone from lower sales in the United States must be subtracted from the increased revenues resulting from the higher prices. For example, if Japanese manufacturers were able to make up for the lower sales in the

25. Robert Crandall, "Import Quotas and the Automobile Industry: The Costs of Protectionism," *The Brookings Review*, Volume 2, No.4 (Summer 1984), pp. 8-16.

United States by increasing sales in other markets at comparable prices, their forgone profits would have been zero.

The available evidence, however, suggests that Japan would have produced and sold more cars without the VRAs. Both the International Trade Commission and the Department of Commerce estimate that the quotas reduced U.S. sales of Japanese cars by about 600,000 cars in 1983 and one million in 1984. 26/ Yet, total Japanese car production remained relatively constant between 1980 and 1984 after growing at an average annual rate of 9 percent between 1975 and 1980; sales in the United States accounted for over 40 percent of the increased production. In 1985, with the quotas relaxed, Japanese production rose by 8 percent with higher sales in the United States accounting for half of the increase. If their average profit per car on the lost sales would have been $1,000 a vehicle, then the estimates of profits accruing to Japanese producers from the VRAs must be reduced by $700 million in 1983 and $900 million in 1984. Thus, although the quotas benefited Japanese producers, they appear to have had a substantially larger impact on the profits of domestic manufacturers.

ADJUSTMENT BY DOMESTIC MANUFACTURERS

Like other industries receiving protection, domestic automobile manufacturers had significantly higher costs than their principal international competitors. In 1982, estimates of Japan's cost advantage for manufacturing and shipping a subcompact car to the United States ranged from $500 to $2,000. 27/ While higher domestic labor costs have contributed to this cost differential, they are by no means the sole determinant. Japanese management has adopted a number of practices that have not only increased productivity, but have improved product quality as well. 28/ Along with the emergence of Japan as a major supplier to the world's automobile markets, domestic manufacturers were also faced with an escalation of oil prices and

26. See International Trade Commission, *The Internationalization of the Automobile Industry*, p. 65, and Department of Commerce, "Analysis of the Japanese Export Restraint," p. 8.

27. See *The Competitive Status of the Automobile Industry*, pp. 90-108. See also Salter and others, "U.S. Competitiveness in Global Industries: Lessons from the Auto Industry," p. 186.

28. See Alan Altshuler and others, *The Future of the Automobile* (Cambridge: MIT Press, 1984), pp. 145-180; and Salter and others, "U.S. Competitiveness in Global Industries: Lessons from the Auto Industry."

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increasing government regulation. The government hoped that by temporarily limiting competition from Japan the industry could adjust to these various shocks and compete more effectively.

Investment in the Automobile Industry

The quotas had a direct effect on profits. Major investments in the automobile industry, like other major manufacturing industries, require long lead times, and consequently, any resulting increase in investment would occur with a lag. It is, therefore, too early to draw definitive conclusions about the effect of the higher profits on automobile companies' investments. Preliminary evidence indicates, however, that if there was an increase in automobile investment because of the quotas, it was not substantial.

Ironically, investment in the motor vehicle industry increased in every year from 1975, just after the first oil shock, through 1981, the year that the VRAs were put in effect (see Figure 16). 29/ In fact, investment remained at historically high levels between 1979 and 1981, even as corporate profits deteriorated and the automakers substantially increased their long-term debt. Although Chrysler needed government loan guarantees, both General Motors and Ford were able to secure the requisite funds from the financial markets. Despite the rapid increase in debt between 1979 and 1982, the ratio of debt-to-stockholders' equity in the motor vehicle industry remained below the average for all domestic manufacturers, and subsequently fell well below it (see Table 9). Investment declined in both 1982 and 1983, and then recovered in 1984 and 1985. In real terms, investment in 1985 exceeded the 1981 peak. Some analysts, however, believe that the automakers acquired technologically advanced equipment too rapidly for it to be used effectively. Given the success of Japanese producers' U.S. plants, which do not rely as extensively on such equipment, these analysts maintain that domestic firms should stress new management techniques along with new technologies. 30/

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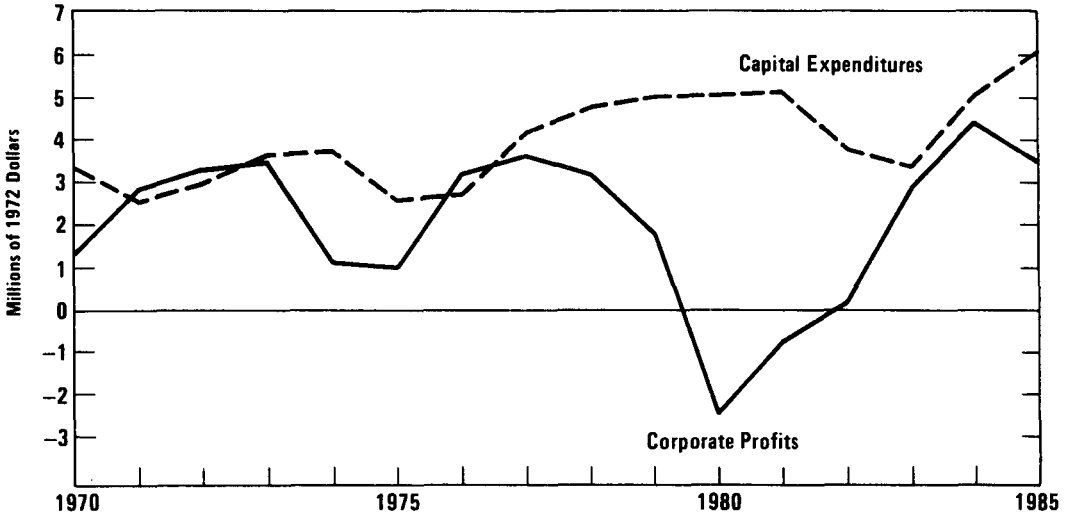
29. Profits in Figure 16 are based on after-tax profits of the four domestic automobile manufacturers and include the results of their international and nonautomotive operations. See *Ward's Automotive Yearbook* (Detroit: Ward's Communication, 1985), p. 177.

30. See, for example, "Auto Makers Discover Factory of the Future is Headache Just Now," *Wall Street Journal*, May 13, 1986, p. 1; and "Detroit Stumbles on its Way to the Future," *Business Week*, June 16, 1986, p. 103.

Figure 16.
Profits and Investment in Auto Industry



SOURCES: Congressional Budget Office based on data in Ward's Automotive Yearbook, (Detroit: Ward's Communication, Inc.), various issues; data also supplied by Department of Commerce.

NOTE: Adjusted by GNP Deflator.

While the increase in investment in 1984 and 1985 coincided with the recovery in automakers' profits, it is difficult to determine the quotas' contribution. 31/ With the economic recovery, the industry's profits would have risen substantially without the restraints. Moreover, all three major auto producers had sufficient funds to make investments in things other than new plant and equpment. Notably, both Ford and Chrysler announced plans to buy back large blocks of their own stock. 32/ Such action implies that the companies expect to earn a greater return in the stock market than by making additional investments in plant and equipment. In addition, both General Motors and Chrysler have made acquisitions outside the automobile industry. General Motors purchased Electronic Data Systems in 1984 and Hughes Aircraft in 1985 at a total cost in excess of $5 billion. 33/ Chrysler

31. Preliminary econometric evidence indicates that the Voluntary Restraint Agreements did not have a significant effect on investment.

32. See "Ford Will Buy 11% of Its Shares for $1 Billion," *Wall Street Journal*, November 15, 1985, p.5.

33. See "GM's Purchase of Hughes Aircraft," *Wall Street Journal*, June 5, 1985, p. 3.

acquired Gulfstream, an airplane manufacturer in 1985 for $637 million. 34/ General Motors maintains that its acquisitions give it access to technologies that will improve its competitivess in the automobile industry. 35/

To the extent that the quotas did influence the firms' investment decisions, the preliminary evidence is that these efforts have yet to bear fruit. In 1985, the Japanese relaxed their restrictions on car exports to the United States, and their sales increased by 16 percent as compared with a 3 percent increase by domestic manufacturers. At the same time, the average price of a Japanese vehicle increased at twice the rate that domestic prices increased. These figures suggest that the restraints and not competition from domestically built products are limiting sales of Japanese imports.

Productivity and Wages

Relative to the gains in all manufacturing, the industry's productivity has increased while the restraints were in effect. Between 1975 and 1979, output per employee hour grew at an average annual rate of 2.8 percent in the motor vehicle industry as compared with 2.1 percent for all manufacturing. Productivity in the motor vehicle industry fell by 7.2 percent in 1980, when automobile production fell by 21 percent. Between 1980 and 1984, it grew at an average annual rate of 6.5 percent versus 3.3 percent for all manufacturing. 36/ While automobile production rose by 20 percent between 1982 and 1984, employment in the motor vehicle industry increased by 10 percent but remained significantly below its peaks in 1979 and 1980 (see Table 10).

Despite the industry's financial difficulties and despite the large contraction of the industry's workforce, workers in the motor vehicle and equipment industry continued to be paid significantly higher hourly wages than workers in other industries; in 1984, they were paid 40 percent more. In-

34. See "Cessna, Dynamics in Merger," *New York Times*, September 14, 1985, p.31.

35. See, for example, "General Motors," *The Economist* (October 18, 1985), pp. 35-38.

36. The data is compiled by the Bureau of Labor Statistics of the Department of Labor for the motor vehicle industry (Standard Industry Classification 371), which also includes truck manufacturing and parts suppliers. Between 1979 and 1984, productivity of the motor vehicle industry increased by 4.1 percent as compared with 3.3 percent in all manufacturing. Unlike most other industries, growth of productivity in the automobile industry is adjusted for changes in the quality of the product.

cluding benefits such as medical insurance, pensions, and paid vacations, the premium that employees in the motor vehicle and equipment industry receive is even greater; in 1984, their total hourly compensation was 52 percent higher than that for the average manufacturing employee. In addition, wages for employees in motor vehicles and car bodies, which accounts for roughly one-third of the workforce in the motor vehicle and equipment industry, were 54 percent higher than the average for all manufacturing. This amount represents a substantial expansion over the 40 percent that prevailed in the mid-1970s.

Arguably, the continued increase in the wage rates of autoworkers was a result of the VRAs. For example, in 1981 and 1982, employees at General

TABLE 10. COMPENSATION AND EMPLOYMENT IN THE MOTOR VEHICLE INDUSTRY

Year	Average Hourly Compensation (In current dollars)		Ratio of Motor Vehicle to All Manufacturing Compensation	Total Employment (In thousands)
	Motor Vehicles	All Manufacturing		
1975	6.42	4.83	1.33	792.4
1976	7.08	5.22	1.36	881.0
1977	7.84	5.67	1.38	947.3
1978	8.49	6.17	1.38	1,004.9
1979	9.06	6.69	1.35	990.4
1980	9.83	7.28	1.35	788.8
1981	11.02	7.99	1.38	788.7
1982	11.61	8.50	1.37	699.3
1983	12.11	8.83	1.37	757.8
1984	12.73	9.18	1.39	867.2

SOURCE: Congressional Budget Office and the Bureau of Labor Statistics, Department of Labor.

Motors, Ford, and Chrysler agreed to temporary wage concessions. With the industry's recovery, the "temporary givebacks" expired, which suggests that the compensation of autoworkers is related to the industry's financial condition. Thus, autoworkers appear to have captured some of the gains from the quotas in higher wage and salaries than they otherwise would have received.

CONCLUSION

As demonstrated by the substantial growth in labor productivity in the past five years, the domestic industry is becoming more efficient. Moreover, the U.S. automobile industry has announced a number of extensive and expensive programs designed to increase its ability to compete with imported vehicles. General Motors, for example, has announced plans to produce a new small car line (Saturn) using entirely new production processes. Similarly, Ford's Alpha and Chrysler's Liberty programs are aimed at developing new cars using new technologies. In addition, each of the Big Three has developed an alliance with one or more Japanese producers to secure a better understanding of Japanese production methods.

With or without the quotas, domestic producers would have had to make substantial investments in order to respond to continuously changing consumer tastes and competitive developments. At most, the quotas enabled domestic producers to accelerate some of these programs. But domestic producers face a moving target; Japanese and European producers are also taking steps to reduce costs and increase product quality.

At the time the voluntary restraint agreements were negotiated, Japan offered its greatest challenge in the small car segment of the market. The ability of foreign producers to compete effectively in this segment of the market has been demonstrated since the 1950s. Except for a brief period in the 1960s, the domestic manufacturers have not been able to introduce products to arrest this growth, and the quotas do not have seemed to changed this. In fact, in the future, domestic producers are planning to sell an increasing number of cars that are built by Japanese producers either overseas or in domestic plants owned or operated by them. 37/ In addition, producers from South Korea, Yugoslavia, and Brazil are beginning to export cars to the United States at prices significantly below those of the

37. See "Downsizing Detroit: The Big Three's Strategy for Survival," *Business Week*, April 14, 1986, pp.86-88.

Japanese. At least some of these products can be expected to be successful in the domestic market. For example, Korea's Hyundai became the top selling imported car in Canada in its second year. 38/

With the potential that they might be cut off from their principal overseas market, the restraints may have also encouraged the Japanese to establish domestic production facilities. While the quotas were not used by the domestic automakers to improve their competitive position in the small car market, they may have increased incentives for Japanese automakers to produce larger cars. Thus, like the Europeans, Japanese producers are offering larger and higher-priced products that provide greater levels of performance. The large-car market has traditionally been the most profitable segment for domestic manufacturers and the one in which they faced the least direct foreign competition.

While it may make economic sense for domestic automobile manufacturers to specialize in producing larger cars, government regulations may prevent this. The manufacturers have to continue to produce fuel efficient small cars to meet the government's corporate average fuel economy standards. Thus, to the extent that automobile companies face limited funds for investment, government policies may require the automakers to invest these funds in maintaining and improving their products in the market niches for which they do not have a competitive advantage.

38. See "U.S. Small-Car Market to Spark 'Blood Bath'," *Washington Post*, February 9, 1986, p. F-1.